*Draft*

# Old Oakland Road Habitat Mitigation Project
# Story Road Mitigation Site #2

## Year 5 (2009) Monitoring Report

Submitted
Sept. 21, 2009

**Biotic Resources Group**

Biotic Assessments ◆ Resource Management ◆ Permitting

Biotic Resources Group
Biotic Assessments ◆ Resource Management ◆ Permitting

*Draft*

# Old Oakland Road Habitat Mitigation Project
# Story Road Mitigation Site #2

## Year 5 (2009) Monitoring Report

*Prepared for:*

Central Coast Wilds

And

Ms. Gabrielle Wilder
City of San Jose Department of Public Works
City Facilities Architectural Services
200 E. Santa Clara Street
San Jose, CA 95113

*Prepared by:*
Biotic Resources Group
Kathleen Lyons, Plant Ecologist

September 2009

2551 South Rodeo Gulch Road #12 ◆ Soquel, California 95073 ◆ (831) 476-4803 ◆ brg@cruzio.com

# OLD OAKLAND ROAD HABITAT MITIGATION PROJECT
# STORY ROAD MITIGATION SITE No. 2

## HABITAT MITIGATION MONITORING REPORT

## YEAR 5 (2009)

## EXECUTIVE SUMMARY


The Old Oakland Road Habitat Mitigation Project at the Story Road Mitigation Site No. 2 encompasses 1.65 acres in central San Jose. The project area consists of a riparian revegetation area immediately southwest of Coyote Creek. The site is accessed from Story Road, approximately 0.75 mile west of State Highway 101. The project site provides riparian mitigation for the Oakland Road Bridge Widening project that was implemented by the City of San Jose.

The City of San Jose and State and Federal regulatory agencies approved off-site mitigation for this construction project through the replacement of 1.65 acres of upland riparian woodland habitat at the Story Road Mitigation Site No. 2 (*Oakland Road Bridge Widening Mitigation and Monitoring Program,* H.T. Harvey & Associates, November 12, 1997). Pursuant to project permits, the Old Oakland Road Habitat Mitigation Project site must be established and meet performance criteria during Years 1-10. Yearly monitoring reports (Years 1-6, Year 8 and Year 10) are required to be submitted to regulatory agencies following each monitoring year, beginning in 2006.

The mitigation site was planted in spring 2005; 1,965 riparian plants (container stock) were installed on the site. Following plant installation, the contractors installed mulch around each planting. Belowground browse protection cages were installed at all riparian plantings. Aboveground cages were installed around some trees and shrubs.

In 2009 the Biotic Resources Group, under contract to Central Coast Wilds (CCW), monitored the mitigation site as per Year 5 protocols. The monitoring program consisted of reconnaissance inspections and a detailed monitoring session.

CCW performed maintenance of the mitigation site during this monitoring period. Maintenance activities included weeding, irrigation system maintenance and repair, trash clean-up, and repair of site vandalism. Several components of the site's irrigation system were vandalized by transients and people from the nearby homeless encampments. In addition, trash and debris, including human waste, were deposited in the mitigation area by transients and occupants of nearby homeless encampments.

### Summary of Year 5 (2009) Monitoring Results

The reconnaissance inspections revealed that plant health and survival was very good to excellent, as evidenced by observations of the plantings and plant growth. Maintenance of the mitigation site was very good as the site received periodic weed control, clean-up and plant maintenance. The area had low weed cover and mulch was maintained around plantings. Weeds were controlled within the mitigation area; however invasive, non-native plants grow in close proximity to the site. These infestations include groves of tree-of-heaven (an invasive tree), which periodically sprout amid the mitigation plantings.

The monitoring documented plant survival and cover as well as environmental features within the mitigation area. According to the mitigation and monitoring plan, the City is responsible for 70% survival for the planted trees and shrubs at the end of Year 5 (2009). As per the data collected during the 2009 monitoring, the Old Oakland Road Habitat Mitigation Project Site has met the required plant survival rates for all tree species. Overall, the trees have a survival rate of 81%, with each species having over 70% survival. Collectively the shrub species have also achieved a minimum 70% plant survival rate. Survival rates of both coyote brush and blackberry exceed 80%; the survival of original plantings of snowberry and mugwort, as well as replacement plants of California rose collectively meets the 70% survival rate. The majority of the container stock trees and shrubs were in good to excellent condition; however, summer drought stress was noted on some snowberry plants.

The riparian woodland sample plots documented the average Year 5 tree cover at 17% (an increase from 11% in 2008) and shrub cover at 47% (an increase from 45% in 2008). According to the mitigation and monitoring plan, the City is responsible for at least 15% tree cover and 7% shrub cover at the end of Year 5 (2009). The project plant cover values exceed these Year 5 performance standards, as outlined in the mitigation and monitoring plan.

Site maintenance activities in 2009 (i.e., weed control and supplemental irrigation of select replacement plants) was adequate to meet plant survival and achieve the Year 5 requirements for riparian tree and shrub cover. All above-ground irrigation lines (poly tube) and valve boxes are scheduled for removal in fall 2009. The main line and quick couplers will be retained.

Similar to observations made in 2008, the 2009 site visits found the continued presence of transient activity and homeless encampments (i.e., tents with cooking and living features) within the mitigation area and within the adjacent riparian corridor (i.e., along the top-of-bank of Coyote Creek). The establishment of these campsites and associated human activities (i.e., deposition of trash, human waste, and trampling) continue to moderate the value of the riparian mitigation area for native plant and animal species. In some areas, such as the southeastern portion of the mitigation area, homeless encampments have routinely trampled installed shrubs, resulting in plant death or compromised health and vigor. Large piles of trash, including widespread deposition of human waste, continue to be present in and adjacent to the mitigation area. In 2008 the City of San Jose Parks maintenance crews, with assistance from the City of San Jose Police Department's Metro Unit, removed a considerable amount of trash deposited by transients and homeless campers from the area; however, both the riparian corridor and the mitigation area continue to receive trash and human debris from camping activities and periodic dumping of debris. The presence of transient activity and homeless encampments within the mitigation area continues to significantly degrade the value of the riparian woodland and compromise the success the project.

**Summary of Recommendations for Year 6 (2010)**

The integrity of the riparian mitigation area is threatened by re-infestation of invasive plant species (e.g., tree-of-heaven from nearby tree groves) as well as the presence of multiple homeless encampments in and adjacent to the mitigation area. Due to these threats, maintenance is needed to ensure the continued survival of the trees and shrubs and development of the riparian woodland, such that the site meets the Year 6-10 performance standards.

Maintenance activities will be needed to remove and control invasive weeds (i.e., sprouts of tree-of-heaven) that will likely establish on the site. Other weed species of concern that should continue to be removed/weed-whipped are poison hemlock and thistles. Site maintenance will also be needed remove debris and trash deposited by transients and homeless campers. Participation by the City of San Jose Parks maintenance crews, with assistance from the City of San Jose Police Department's Metro Unit and

other City departments, as applicable, is needed to control the number of homeless encampments and reduce the amount of trash and human wasted deposited within the riparian area.

As recommended in previous monitoring reports, the City should remove trees/tree groves of tree-of-heaven (invasive species) that abut the mitigation area. This tree removal plan is presented in Appendix A. The removal of these invasive trees will provide long-term benefits to the mitigation area, as tree-of-heaven can aggressively invade the mitigation area once maintenance activities cease.

The slope between Story Road and the mitigation site is virtually devoid of vegetation. Although this area is outside the designated mitigation area, plantings on this slope would benefit the riparian habitat and, over-time, create a wooded slope. Plantings native oak acorns on this slope would be an economical approach to establishing vegetation in this area. Approximately 50-75 acorn planting sites (2-4 acorns per site) are recommended.

Monitoring is required in Years 6, 8, and 10, following the requirements set forth in the mitigation and monitoring plan. Monitoring requires re-sampling the riparian plots to document plant cover and tree height and periodic reconnaissance inspections to document the overall progress of the mitigation area. The Year 6 -10 (2010 -2014) data should be compared to previous year data and the Year 6-10 performance standards. Although the requirements for monitoring are complete as of Year 5 for California Department of Fish and Game (CDFG), additional monitoring is required in Years 6-10 for the following agencies:

- Army Corps of Engineers (ACOE): yearly monitoring reports (Years 6, 8, Year 10) submitted to ACOE.
- Regional Water Quality Control Board (RWQCB): yearly monitoring reports (Years 6, 8, Year 10) submitted to RWQCB.
- City of San Jose Planning Department: yearly monitoring reports (Years 6, 8, Year 10) submitted to the department.

*This page left blank.*

# OLD OAKLAND ROAD HABITAT MITIGATION PROJECT
## STORY ROAD MITIGATION SITE No. 2

## HABITAT MITIGATION MONITORING REPORT

## YEAR 5 (2009)

## 1.1 INTRODUCTION

The Old Oakland Road Habitat Mitigation Project is located at Story Road Mitigation Site No. 2 and encompasses 1.65 acres in central San Jose. The project area consists of a riparian revegetation area immediately southwest of Coyote Creek. The site is accessed from Story Road, approximately 0.75 mile west of State Highway 101. The project's location is depicted on Figure 1. The project site provides riparian mitigation for the Old Oakland Road Bridge Widening Project that was implemented by the City of San Jose.

The roadway-widening project was designed to minimize impacts to riparian resources; however, construction occurred in the riparian corridor and affected approximately 0.46 acre of riparian woodland and 0.27 acre of ruderal vegetation within the Coyote Creek corridor. These actions were outlined in the project's environmental documents and accompanying regulatory permits. The project was determined to have direct and indirect impacts on riparian resources. Due to impacts to these sensitive resources, the City developed specific environmental mitigation measures for the project. These measures include riparian habitat replacement and long-term maintenance and enhancement of a designated mitigation area; this area is depicted on Figure 2. Specific mitigation actions required for the site are addressed in the *Oakland Road Bridge Widening Mitigation and Monitoring Plan* (H.T. Harvey & Associates, November 12, 1997).

## 1.2 SUMMARY OF PROJECT PERMITS AND REQUIREMENTS

### 1.2.1 California Department of Fish and Game (CDFG) Agreement – RS-0167-98

The riparian habitats within the Old Oakland Road Bridge Widening project area are under the jurisdiction of the California Department of Fish and Game (CDFG) under 1602 of the California Fish and Game Code. As the project resulted in the removal of riparian woodland, the Fish and Game agreement specifies the revegetation of 1.65 acres of riparian woodland.

The riparian wetland mitigation area must be established and meet performance criteria by the end of Year 5. Yearly monitoring reports (to Year 5) are required to be submitted to CDFG following each monitoring year, beginning in 2006.

### 1.2.3 U.S. Army Corps of Engineers (ACOE) - NWP No. 23019S

The creek environs within the Old Oakland Road Bridge Widening project area are under the jurisdiction of the ACOE under Section 404 of the Clean Water Act. Although the widening project did not result in the permanent impacts to Waters of the U.S., including wetlands, the City secured a permit pursuant to the ACOE's Nationwide Permit requirements for demolition activities associated with the bridgework. To

mitigate these impacts, the Old Oakland Road Habitat Mitigation Project provides for the establishment of 1.65 acres of riparian woodland, consistent with NWP No. 23019S.

The mitigation must be established and meet performance criteria by the end of Year 10. Yearly monitoring reports (Years 1-6, Year 8 and Year 10) are required to be submitted to ACOE following each monitoring year, beginning in 2006.

### 1.2.4 Regional Water Quality Control Board Water Quality (RWQCB) Certification – No. 02-43-C0139

The creek environs within the Old Oakland Road Habitat Mitigation Project area is under the jurisdiction of the RWQCB under Clean Water Act Section 401 and the Porter-Cologne Water Quality Control Act. Demolition work had the potential to affect Waters of the State, so to mitigate these impacts and to be in compliance with RWQCB requirements the project includes mitigation for impacts to State waters through the establishment of 1.65 acres of riparian woodland at the Story Road Mitigation Site #2, consistent with waivers and consistency determinations for the project.

The mitigation must be established and meet performance criteria by the end of Year 10. Yearly monitoring reports (to Year 10) are required to be submitted to RWQCB following Years 1-6, Year 8, and Year 10, beginning in 2006.

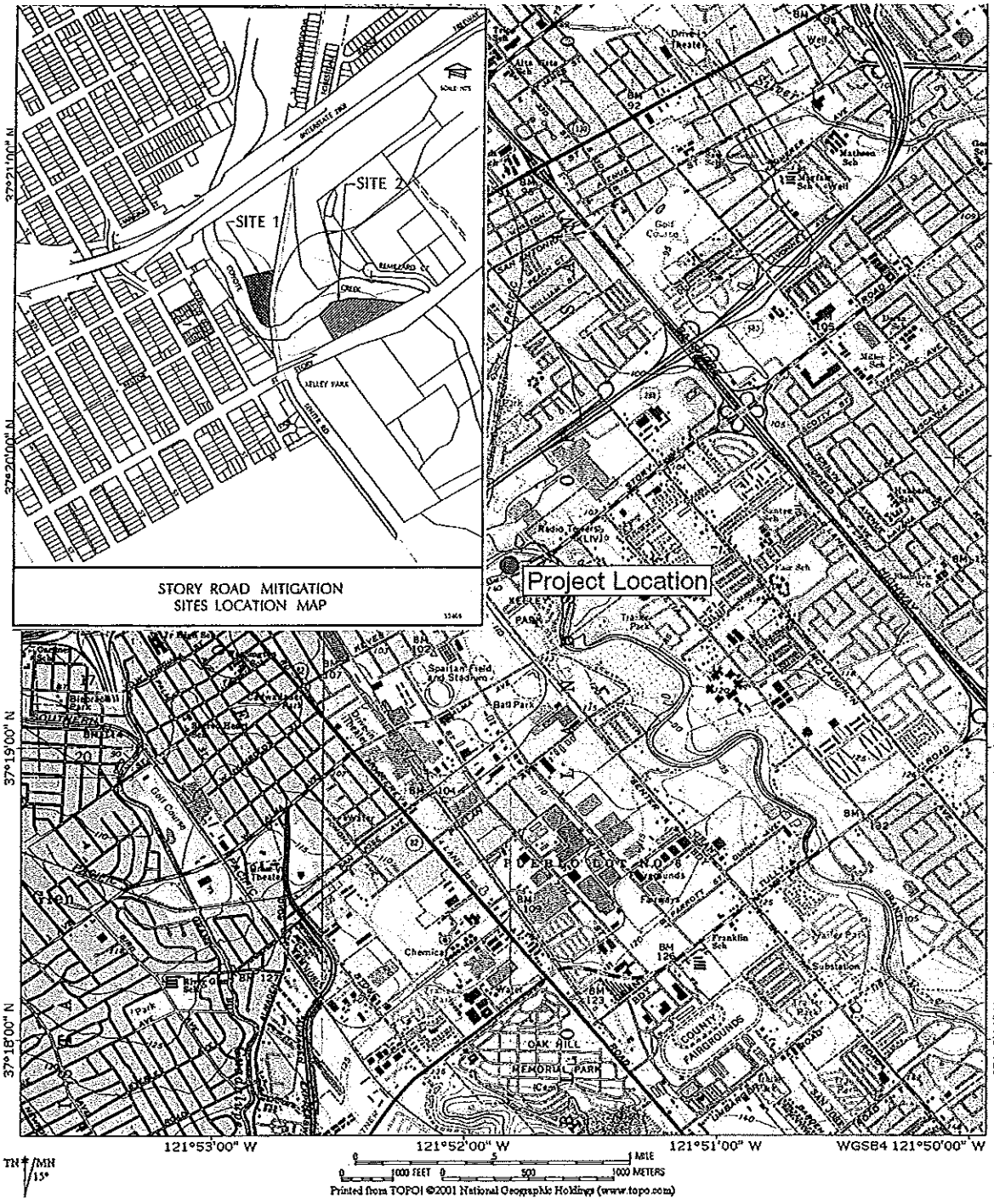
### 1.2.2 City of San Jose Planning Department - Environmental Review

The City of San Jose conducted environmental review of the project. The environmental document identified mitigation measures for biological resources, and consistent with other regulatory agency permit requirements identified the Story Road Mitigation Site No. 2 for the revegetation of 1.65 acres of riparian woodland. The mitigation area must be established and meet performance criteria by the end of Years 1-6, 8 and 10. Yearly monitoring reports (to Year 10) are to be prepared and submitted to the City Planning Department following each monitoring year.

## 1.3 SUMMARY OF ENVIRONMENTAL MITIGATION REQUIREMENTS

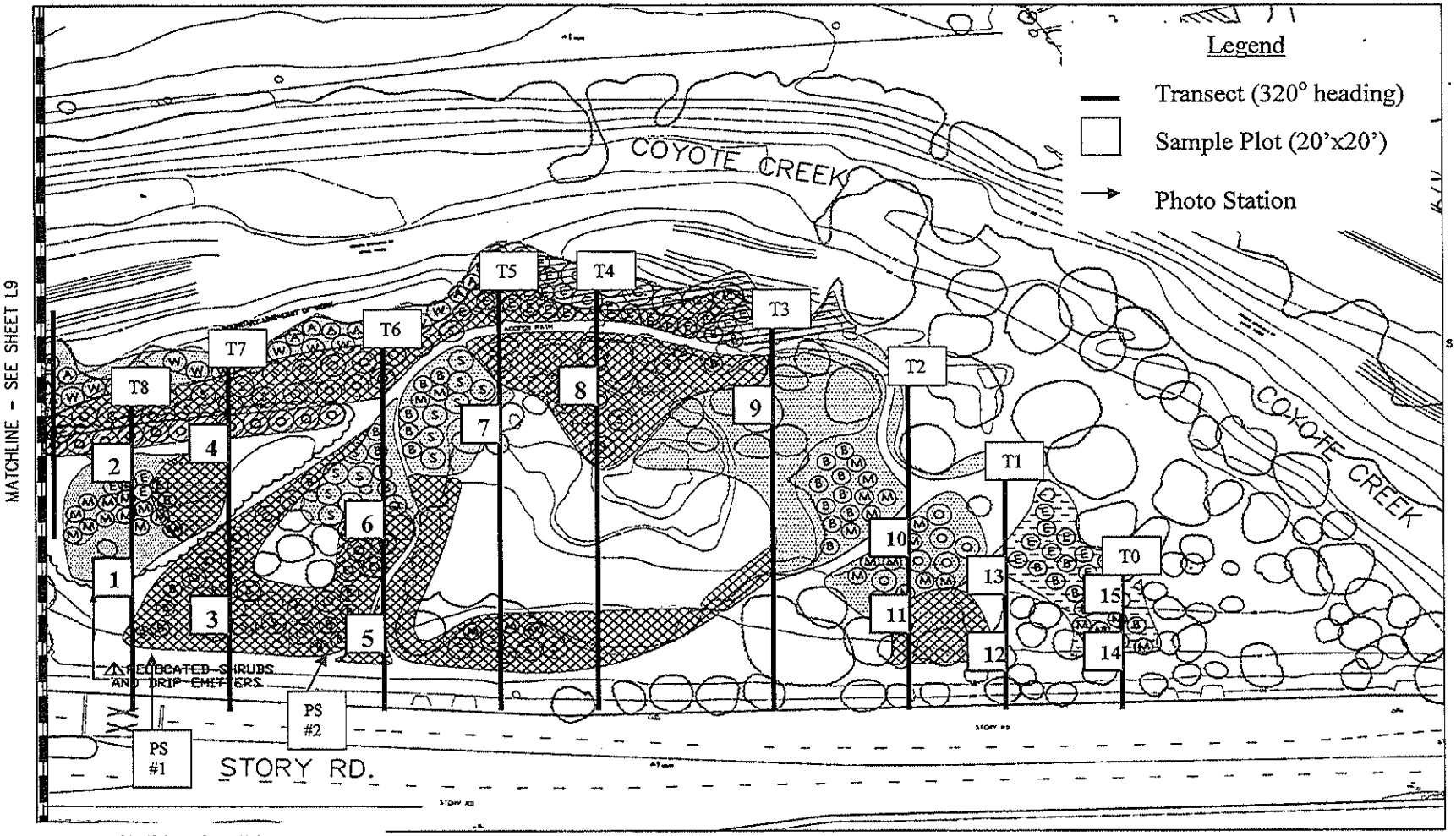
The mitigation requirements are derived from the City of San Jose's environmental documents and regulatory agencies permit conditions, the need to create a self-sustaining riparian mitigation area, and the need to maintain and manage the mitigation area within the projects 10-year reporting schedule. The mitigation requirements follow those outlined in the projects mitigation and monitoring plan (H.T. Harvey & Associates, 1997) and further specified in agency permits and conditions.

The implementation of the mitigation plan and subsequent maintenance and monitoring of the mitigation area is designed to ensure project compliance with applicable permits and conditions of approval. This is to be accomplished by implementing the 10-year maintenance and monitoring program, beginning in Year 1, such that plant survival rates are maximized and desired habitat features are achieved. The mitigation area will also be maintained to ensure compliance with restricted uses. The 10-year establishment period will maximize the potential for long-term plant survival within the mitigation area. The maintenance and monitoring program also includes the implementation of remedial actions on a yearly basis if plantings or habitats fail to meet performance standards or are not proceeding in a manner that will lead to the project meeting its 10-year requirements. The success of the maintenance and monitoring program will be documented monitoring on a yearly basis during Years 1-5, Year 6, Year 8, and Year 10.




Base Map: USGS Topographic Map, San Jose East

| | | |
|---|---|---|
| **Biotic Resources Group**<br>2551 S. Rodeo Gulch Road #12 ♦ Soquel, CA 95073<br>(831) 476-4803 ♦ Fax (831) 476-8038 | Old Oakland Road Habitat Mitigation<br>Story Road Mitigation Site No. 2<br><br>Year 5 (2009) Monitoring Report | Figure 1<br>9/09 |




As-Built Planting Plan
Source: Central Coast Wilds, 2005

| | | |
|---|---|---|
| **Biotic Resources Group**<br>2551 S. Rodeo Gulch Road #12 ◆ Soquel, CA 95073<br>(831) 476-4803 ◆ Fax (831) 476-8038 | Old Oakland Road Habitat Mitigation Project – Story Road Mitigation Site #2<br>Year 5 (2009) Monitoring Report | Figure 2<br>9/09 |

## 1.4 SUMMARY OF REPORTING REQUIREMENTS

Under the requirements of the project's regulatory permits, the status of the mitigation area and its compliance with these permits/agreements must be reported in a yearly monitoring report. During Years 1-5, 6, 8 and 10, the yearly report is to be submitted to CDFG (to Year 5), ACOE, RWQCB, and City of San Jose Planning Department following each year's monitoring.

Each year's annual monitoring report shall contain a brief description of the project, methods used to collect and analyze the data, results of the data analysis, conclusions regarding the present conditions of the site, and remedial actions to be implemented.

## 1.5 SUMMARY OF REVEGETATION ACTIVITIES IMPLEMENTED

Central Coast Wilds, a landscape contractor under contract to the City of San Jose, planted the site in spring 2005. A total of 1,965 container stock riparian plants were specified for installation, as listed on Table 1 (Central Coast Wilds, 2005). Following plant installation, the contractors installed mulch around each planting. Below and aboveground browse protection cages were installed at all plantings. Central Coast Wilds maintained the plantings throughout 2009.

The Biotic Resources Group, under contract to Central Coast Wilds, monitored the mitigation area in 2009 (Year 5). The monitoring program consisted of several reconnaissance inspections and detailed monitoring sessions as per Year 5 protocols. The results of the Year 5 monitoring are presented in this report. The report also identifies whether the project has met the Year 5 performance standards identified for the project and if remedial actions are necessary to ensure the project meets the project's long-term habitat goals.

**Table 1. Plant Installation within Old Oakland Road Habitat Mitigation, Story Road Mitigation Site No. 2**

| Scientific Name | Common Name | Container Size | Number of Plants Installed in 2005 |
|---|---|---|---|
| *Acer negundo* | Box elder | Tree pot | 41 |
| *Aesculus californica* | California buckeye | Tree pot | 41 |
| *Platanus racemosa* | California sycamore | Tree pot | 41 |
| *Quercus agrifolia* | Coast live oak | Tree pot | 41 |
| *Sambucus mexicana* | Blue elderberry | Tree pot | 42 |
| *Populus fremontii* | Fremont cottonwood | Tree pot | 17 |
| *Salix sp.* | Willow | Tree pot | 34 |
| **Tree Subtotal** | | | **257** |
| *Baccharis pilularis* | Coyote brush | Dee pot | 497 |
| *Rubus ursinus* | California blackberry | Dee pot | 497 |
| *Symphoricarpos albus* | Snowberry | Dee pot | 497 |
| *Artemisia douglasiana* | Mugwort | Dee pot | 217 |
| **Shrub Subtotal** | | | **1,708** |
| **TOTAL** | | | **1,965** |

## 1.6 METHODOLOGY

The Old Oakland Road Habitat Mitigation Project at Story Road Mitigation Site No.2 was inspected on March 4, May 22, August 24, and August 28, 2009. Kathleen Lyons of the Biotic Resources Group

conducted these inspections. At the inspection sessions, general environmental features of the mitigation site were noted as well as general plant species performance and area maintenance.

In August 2009, a detailed monitoring session was conducted to document the riparian plantings. At the monitoring session, permanent sampling plots that were established in Year 1 (2005) were re-sampled. Fifteen (15) sampling plots, each measuring 20 feet by 20 feet (totaling 400 square feet), located along nine transects, were sampled. The southeast corner of each plot is marked in the field with a red-painted metal post. The location and orientation of each sample plot is depicted on Figure 2. Within each plot, plant survival, plant health, vigor, and height, and vegetative cover was recorded. The rating system used for plant health and vigor is listed on Table 2. A plant count, noting plant survival by species, was conducted for trees and most shrubs within the entire mitigation area.

**Table 2. Plant Health and Vigor Rating System, Old Oakland Road Habitat Mitigation Project at Story Road Mitigation Site No. 2**

| Code | Rating | Health Characteristics | Vigor Characteristics |
|---|---|---|---|
| 4 | Excellent | 75-100% healthy foliage | Vigorous new growth observed throughout plant |
| 3 | Good | 50-74% healthy foliage | Vigorous new growth observed only at terminal bud |
| 2 | Fair | 25-49% healthy foliage | No new growth evident |
| 1 | Poor | 0-24% healthy foliage | Stem dieback observed |

The mitigation area was also evaluated as to site maintenance and other disturbances. Photographs documenting each the permanent sampling plots and the overall condition of the mitigation plantings were taken. Two photo stations established in 2005 were re-photographed in 2009. The location of the photo stations is depicted on Figure 2.

## 1.7 MONITORING RESULTS

### 1.7.1 Reconnaissance Inspections

The reconnaissance inspections of the mitigation area documented the status of plant growth and maintenance activities, as well as the general progress of the revegetation efforts. Figures 3 and 4 depict the typical condition of the planting area and development of the riparian habitat between Year 1 (October 2005) and Year 5 (August 2009).

During Year 5 (2009) the mitigation plan requires competition from weeds and/or invasive, non-native plant species within the planting basins be minimized. The basins are required to be controlled for weeds during the growing season. In addition, weeds and/or invasive, non-native plant species within other portions of the mitigation area (i.e., areas outside of planting basins, yet within the overall mitigation area) are to be minimized to maximize plant survival and desired habitat features. The 2009 reconnaissance inspections documented adherence to these maintenance requirements, as weeds between plantings had been weed-whipped and occurrences of tree-of-heaven (*Ailianthus altissima)*, an invasive, non-native tree, had been controlled.


Figure 3. View of westernmost portion of riparian planting area, Year 1 - October 2005. (Photo station #1)


Figure 4. View of westernmost portion of riparian planting area, Year 5 - August 2009. (Photo station #1)

The reconnaissance inspections revealed that plant health and survival was good to very good, as evidenced by observations of the plantings and plant growth. Summer drought stress was observed on several snowberry plants in the central portion of the mitigation area (plot 7 area), yet these plants are expected to recover upon the start of winter rains.

### 1.7.2 Plant Survival Monitoring within Riparian Planting Area

Detailed monitoring of the riparian plantings was conducted in August 2009. The monitoring was conducted approximately 4.5 years after the plantings were installed. A summary of the monitoring results is presented in Table 3. The monitoring documented plant survival as well as environmental features.

Human disturbances were observed; disturbances include trampling of shrubs (in northeastern area), deposition of debris (trash piles and human waste), and construction/occupation of homeless encampments. In 2009, CCW operated the irrigation system manually during each maintenance visit to minimize tampering and vandalism to the system.

**Table 3. Summary of Year 5 (2009) Plant Survival Data within Old Oakland Road Habitat Mitigation Project at Story Road Mitigation Site No. 2**

| Plant Species | Number of Plants Installed (Spring 2005) | Number of Plants Alive (8/09) | Percent Survival (Year 5) (8/09) | Percent Survival Performance Standard | Number of Plants to Install to Meet Survival Rate Per Species |
|---|---|---|---|---|---|
| Trees | | | | | |
| Box Elder | 41 | 39 | 95% | 70% | 0 |
| California Buckeye | 41 | 29 | 70% | 70% | 0 |
| California Sycamore | 41 | 36 | 87% | 70% | 0 |
| Coast Live Oak | 41 | 35 | 85% | 70% | 0 |
| Blue Elderberry | 42 | 32 | 76% | 70% | 0 |
| Fremont Cottonwood | 17 | 12 | 71% | 70% | 0 |
| Willow | 34 | 24 | 71% | 70% | 0 |
| **Tree Total** | **257** | **207** | **81%** | **70%** | **0** |
| **Shrubs** | | | | | |
| Coyote Brush | 497 | 421 | 85% | 70% | 0 |
| California Blackberry | 497 | 366 | 74% | 70% | 0 |
| Snowberry | 497 | 362 | 72% | 70% | 0 |
| Mugwort | 217 | 50 | | | |
| California Rose* | | 99 | | | |
| **Shrub Total** | **1,708** | **1,298** | **76%** | **70%** | **0** |

*Replacement plants installed in November 2006 and 2007.

Within the riparian planting area 1,965 plantings were specified in the mitigation and monitoring plan. During the 2009 monitoring session 1,505 planting sites contained trees and shrubs that were alive, yielding a 77% survival rate (all species). Box elder, California sycamore, and coast live oak had the highest survival rate at 95%, 87%, and 85%, respectively. Blue elderberry followed with a survival rate of 76%; other trees are California buckeye (70%), Fremont cottonwood (71%), and willow (71%). Collectively, all shrub species met the 70% survival rate performance standard, including California rose replacement plantings installed in 2006 and 2007 (Table 3).

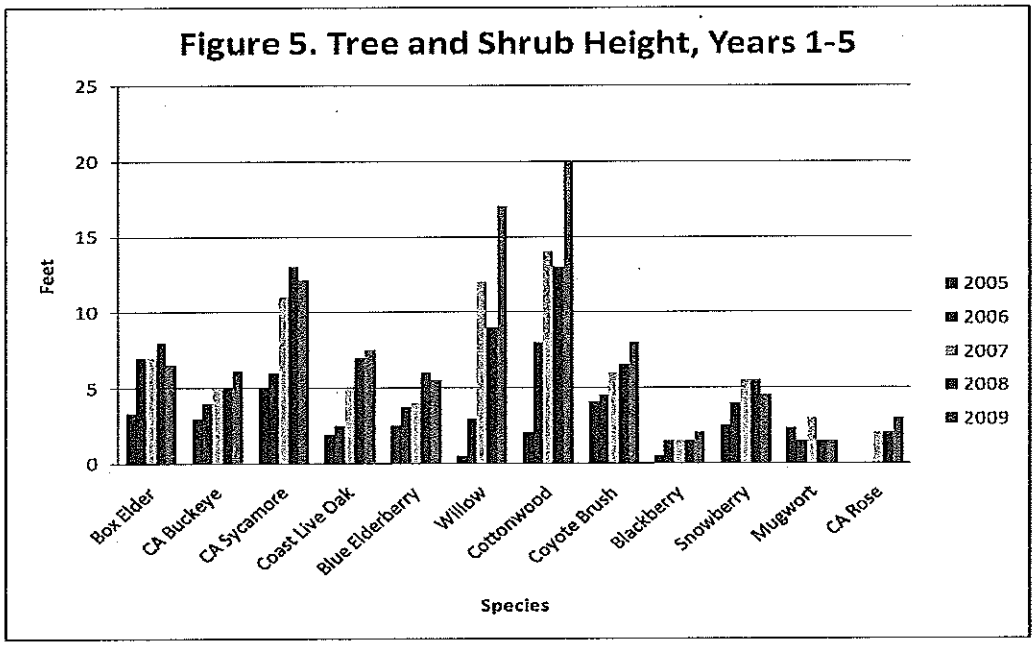
Based on the data from the fifteen sample plots, the monitoring documented that most plants exhibited very good to excellent health and vigor (Table 4), with most species displaying high vigor and health. Of the trees, California sycamores average 12 feet tall, yet some trees were over 20 feet in height. Fremont cottonwood and willow trees are located outside the sample plots and averaged 20 feet and 17 feet, respectively. Box elders average 6.5 feet tall while coast live oaks average 7.5 feet. Blue elderberries average 5.5 feet and buckeyes average 6.1 feet tall. For the shrubs, coyote brush averaged 8 feet tall, followed by snowberry (4.5 feet), California rose (3 feet), mugwort (1.5 feet) and California blackberry (2 feet).

As depicted on Table 4, all tree species except blue elderberry that were recorded within the sample plots, meet or exceed their Year 5 (2009) height requirement/performance standard. The performance standard for blue elderberry is 6 feet; trees recorded in the sample plots averaged 5.5 feet tall; however, other elderberries within the mitigation area were found to range between 6 to 7 feet tall. Figure 5 displays the trend in plant height between Year 1 (2005) and Year 5 (2009) for the installed trees and shrubs.

**Table 4. Sample Plot Data within Old Oakland Road Habitat Mitigation Project at Story Road Mitigation Site No. 2 - Year 5 (2009)**

| Plant Species | Average Height (Feet) | Health and Vigor Rating | Tree Height Performance Standard for Year 5 (2009) (Feet) |
|---|---|---|---|
| Box elder | 6.5 | 4.0 | ** |
| California buckeye | 6.1 | 3.5 | 6.0 |
| California sycamore | 12.1 | 4.0 | 11.0 |
| Coast live oak | 7.5 | 4.0 | 5.0 |
| Blue elderberry | 5.5 | 3.5 | 6.0 |
| Fremont cottonwood | 20.0* | 4.0 | 15.0 |
| Willow | 17.0* | 4.0 | 10.0 |
| Coyote Brush | 8.0 | 4.0 | ** |
| California blackberry | 2.0 | 4.0 | ** |
| Snowberry | 4.5 | 3.0 | ** |
| Mugwort | 1.5 | 3.0 | ** |
| California Rose | 3.0 | 3.5 | ** |

* Height determined from trees located outside of plots, as species not represented in sample plots
** Height data for this species is not listed in HMMP



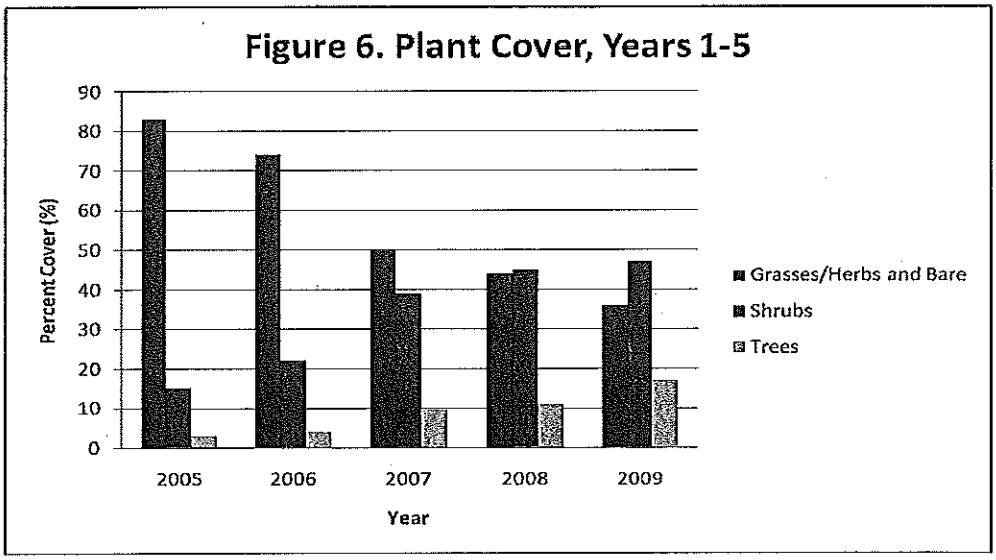
### 1.7.3 Permanent Sample Plot Monitoring

As per the mitigation and monitoring plan, the progress of the riparian planting area must be documented through permanent plots. The plan specifies a minimum of fifteen plots be established along a minimum of eight transects. In August 2009 data was collected on plant survival, plant cover (percent cover), and plant height at the fifteen plots. Site maintenance, plant health and vigor and natural recruitment of native and non-native woody species were also noted. Photographs were taken from the southeast corner of each sampling plot; these photos, with a comparison to the Year 1 (2005) conditions are depicted in Figures 7-21.

Within the planting area, bare and/or herbaceous plant cover averaged 36%, which is a decrease from 44% in 2008. Shrub cover averaged 47%, an increase from 45% in 2008. Tree cover averaged 17%, an increase from 11% in 2008 (Table 5). These data continue to show a decrease in herbaceous cover and increases in both shrub and tree cover indicative of developing riparian woodland. Figure 6 displays the trend in increasing shrub and tree cover since plant installation.

**Table 5. Sample Plot Data on Plant Cover within Old Oakland Road Habitat Mitigation Project at Story Road Mitigation Site #2 – Year 5 (2008)**

| | Percent Relative Cover (%) | | | | | | |
|---|---|---|---|---|---|---|---|
| Plot Number | Herbaceous /Bare | Shrub | Tree | Plot Number | Herbaceous /Bare | Shrub | Tree |
| 1 | 20% | 60% | 20% | 9 | 25% | 55% | 20% |
| 2 | 10% | 90% | 0% | 10 | 50% | 40% | 10% |
| 3 | 10% | 80% | 10% | 11 | 70% | 20% | 10% |
| 4 | 10% | 90% | 0% | 12 | 10% | 60% | 30% |
| 5 | 42% | 28% | 30% | 13 | 40% | 50% | 10% |
| 6 | 40% | 10% | 50% | 14 | 95% | 5% | 0% |
| 7 | 30% | 40% | 30% | 15 | 50% | 40% | 10% |
| 8 | 40% | 30% | 30% | Average | 36% | 47% | 17% |



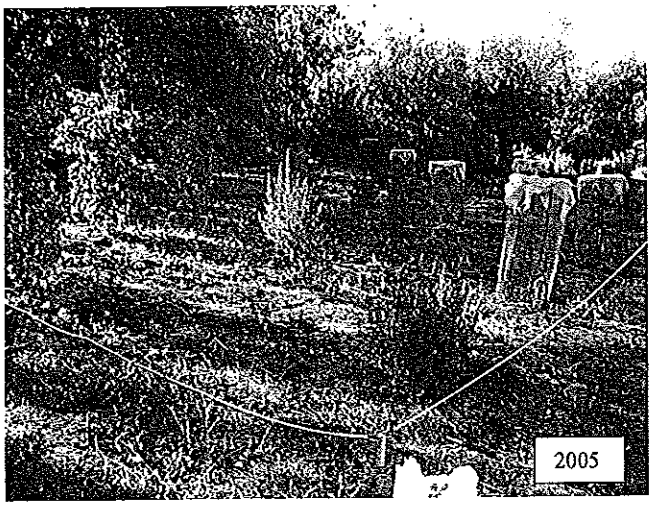



Figure 7A. View of Sample Plot 1, October 2005. Sample plot contains 7 plants; 3 coyote brush, 1 blackberry and 2 box elders. One empty planting area was noted. Herbaceous/bare cover is 80%; shrub cover is 10% and tree cover is 10%.

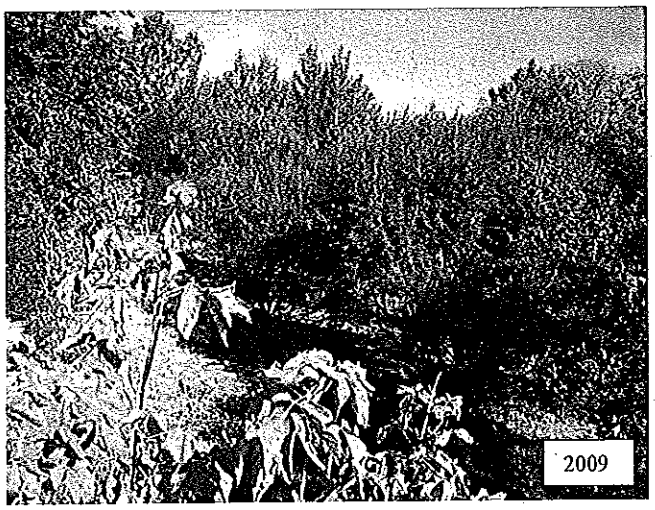



Figure 7B. View of Sample Plot 1, August 2009. Herbaceous/bare cover is 20%; shrub cover is 60% and tree cover is 20%. Natural recruitment by coyote brush.


Figure 8A. View of Sample Plot 2, October 2005. Sample plot contains 14 plants consisting of 7 blackberries and 7 coyote brush. Herbaceous/bare cover is 60%; shrub cover is 40% and tree cover is 0%.

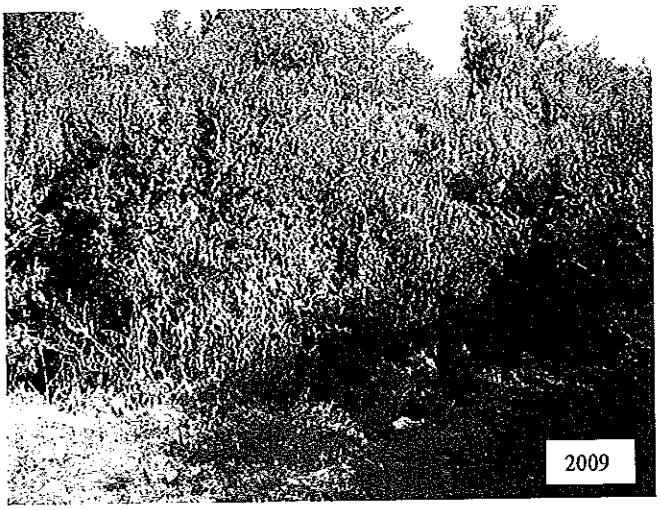



Figure 8B. View of Sample Plot 2, August 2009. Herbaceous/bare cover is 10%; shrub cover is 90% and tree cover is 0%. Trash and human waste is prevalent in this area.


Figure 9A. View of Sample Plot 3, October 2005. Sample plot contains 10 plantings, consisting of 4 coyote brush, 2 coast live oaks, 3 blackberries and 1 sycamore. Herbaceous/bare cover is 79%; shrub cover is 20% and tree cover is 1%.

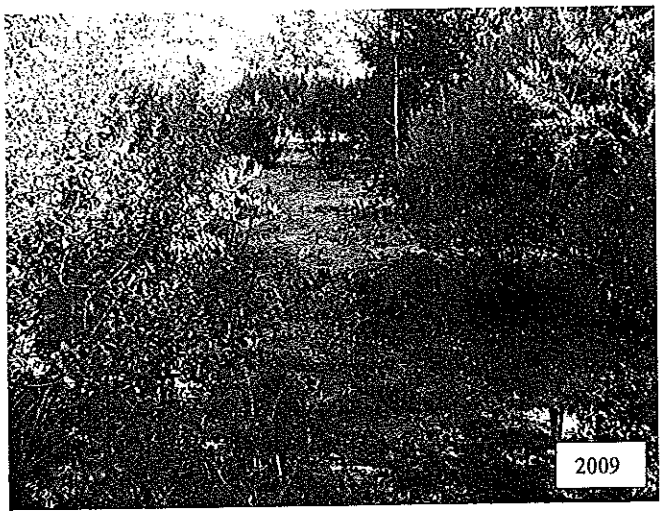



Figure 9B. View of Sample Plot 3, August 2009. Herbaceous/bare cover is 10%; shrub cover is 80% and tree cover is 10%. Natural recruitment of coyote brush.


Figure 10A. View of Sample Plot 4, October 2005. Sample plot contains 7 plantings , consisting of 7 coyote brush. Herbaceous/bare cover is 60%; shrub cover is 40% and tree cover is 0%.

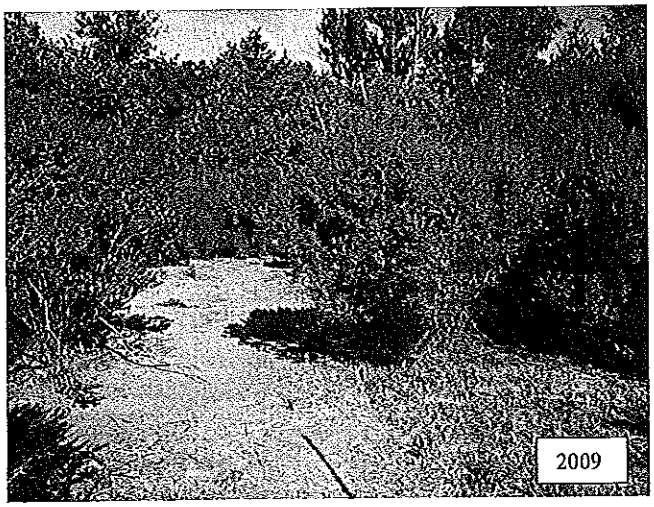



Figure 10B. View of Sample Plot 4, August 2009. Herbaceous/bare cover is 10%; shrub cover is 90% and tree cover is 0%. Natural recruitment of coyote brush. A foot trail traverses this area and human waste is prevalent.

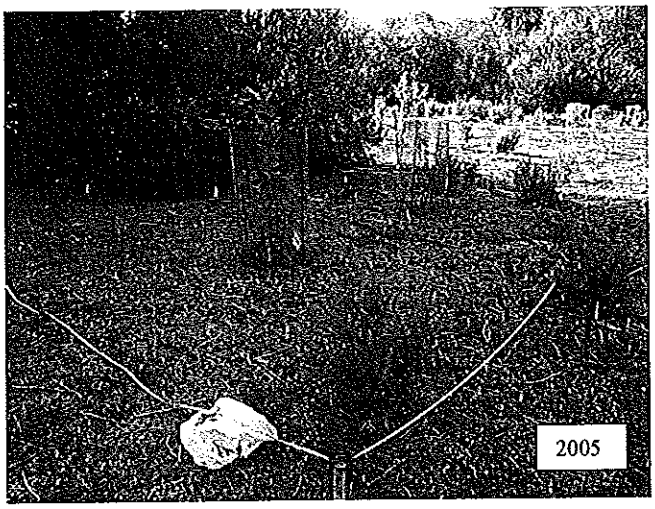



Figure 11A. View of Sample Plot 5, October 2005. Sample plot contains 5 plantings, consisting of 1 coyote brush, 1 blackberry, 1 coast live oak, 1 willow and 1 sycamore. Herbaceous/bare cover is 94%; shrub cover is 5% and tree cover is 1%.

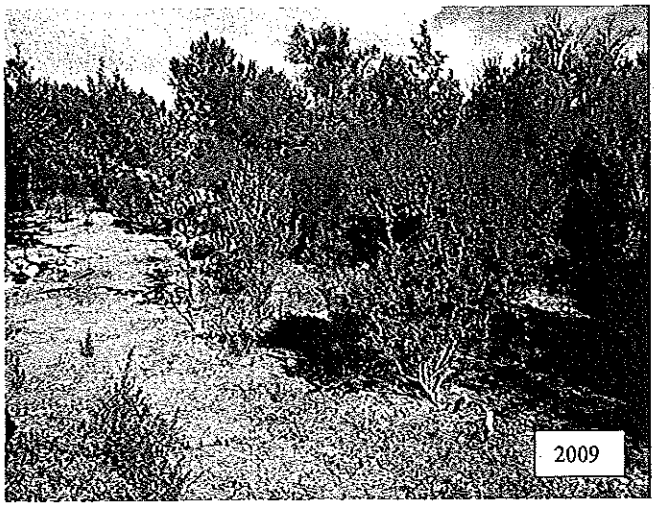



Figure 11B. View of Sample Plot 5, August 2009. Herbaceous/bare cover is 40%; shrub cover is 28%, tree cover is 3020%. And bare is 2%. Natural recruitment by coyote brush. Note trash pile nearby.

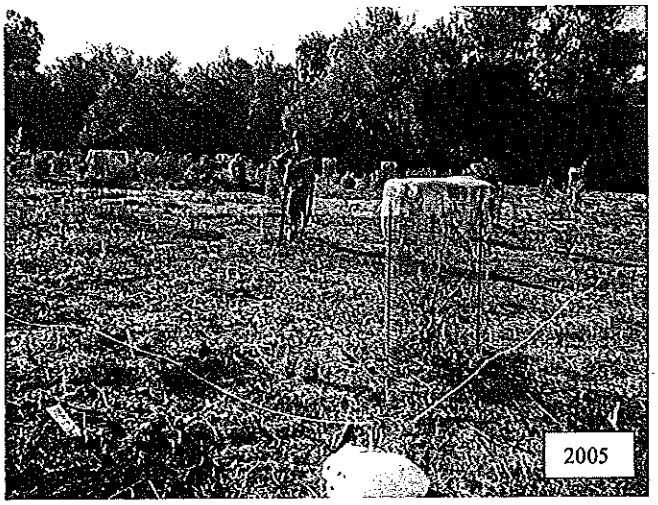



Figure 12A. View of Sample Plot 6, October 2005. Sample plot contains 10 plantings, consisting of 1 blackberry, 3 sycamore, 4 snowberry and 2 empty sites. Herbaceous/bare cover is 98%; shrub cover is 1% and tree cover is 1%.

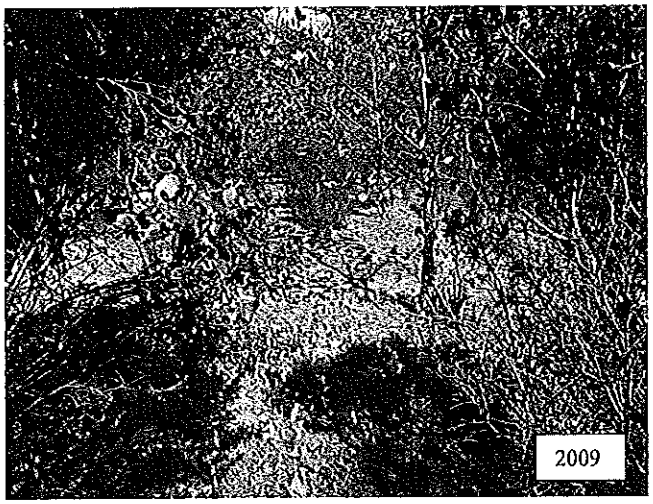



Figure 12B. View of Sample Plot 6, August 2009. Herbaceous/bare cover is 40%; shrub cover is 10% and tree cover is 50%. Natural recruitment by snowberry.


Figure 13A. View of Sample Plot 7, October 2005. Sample plot contains 9 plantings, consisting of 9 snowberries. Herbaceous/bare cover is 80%; shrub cover is 20% and tree cover is 0%.


Figure 13B. View of Sample Plot 7, August 2009. Herbaceous/bare cover is 30%; shrub cover is 40% and tree cover is 30%. Snowberry affected by summer drought stress.


Figure 14A. View of Sample Plot 8, October 2005. Sample plot contains 5 plantings, consisting of 1 box elder, 3 snowberries and 1 sycamore. Herbaceous/bare cover is 94%; shrub cover is 1% and tree cover is 5%.

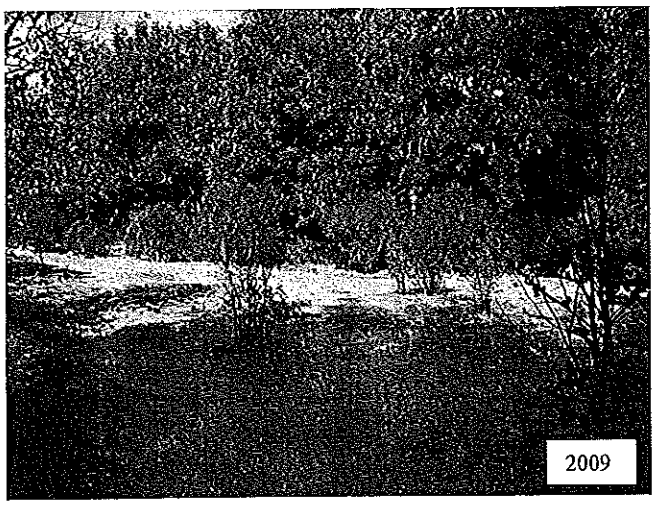



Figure 14B. View of Sample Plot 8, August 2009. Herbaceous/bare cover is 40%; shrub cover is 30% and tree cover is 30%. Vegetation in this area is trampled by transient activity.

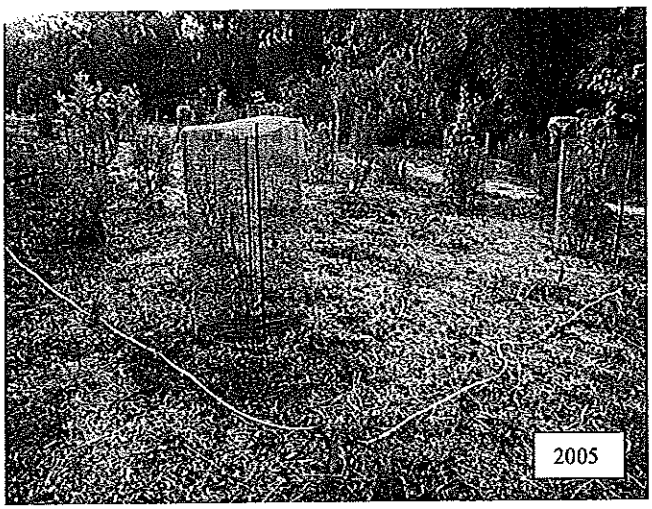



Figure 15A. View of Sample Plot 9, October 2005. Sample plot contains 10 plantings, consisting of 2 buckeyes, 2 blackberries, 1 box elder, 4 coyote brush and 1 empty site. Herbaceous/bare cover is 79%; shrub cover is 20% and tree cover is 1%.


Figure 15B. View of Sample Plot 9, September 2008. Herbaceous/bare cover is 20%; shrub cover is 55% and tree cover is 20%. Note presence of trash/human waste. This site is near two large homeless encampments.


Figure 16A. View of Sample Plot 10, October 2005. Sample plot contains 11 plantings, consisting of 5 snowberry, 1 coyote brush, 1 blue elderberry, 1 buckeye and 3 empty sites. Herbaceous/bare cover is 90%; shrub cover is 5% and tree cover is 5%.

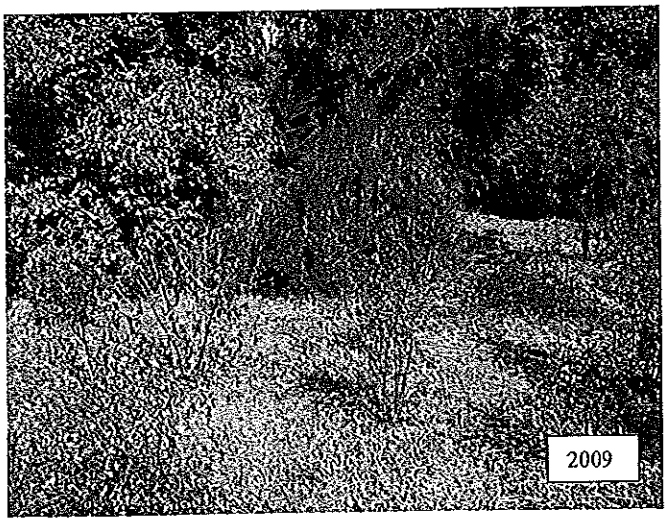



Figure 16B. View of Sample Plot 10, August 2009. Herbaceous/bare cover is 50%; shrub cover is 40% and tree cover is 10%.


Figure 17A. View of Sample Plot 11, October 2005. Sample plot contains 8 plantings, consisting of 1 box elder, 6 snowberries and 1 empty site. Herbaceous/bare cover is 90%; shrub cover is 5%, tree cover is 5%.


Figure 19A. View of Sample Plot 13, October 2005. Sample plot contains 10 plantings, consisting of 5 snowberries, 1 coast live oak, 1 blue elderberry, 1 box elder, 1 coyote brush and 1 empty site. Herbaceous/bare cover is 94%; shrub cover is 5%, tree cover is 1%.

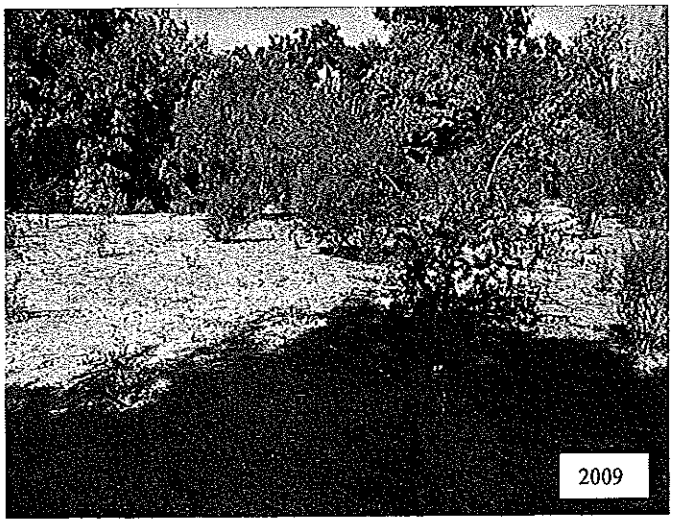



Figure 19B. View of Sample Plot 13, August 2009. Herbaceous/bare cover is 40%; shrub cover is 50%, tree cover is 10%. This area is frequented by transients; a homeless camp (with fed-feral cats) is nearby.


Figure 20A. View of Sample Plot 14, October 2005. Sample plot contains 10 plantings , consisting of 8 mugwort, 1 blue elderberry, and 1 empty site. Herbaceous/bare cover is 90%; shrub cover is 10%, tree cover is 0%.

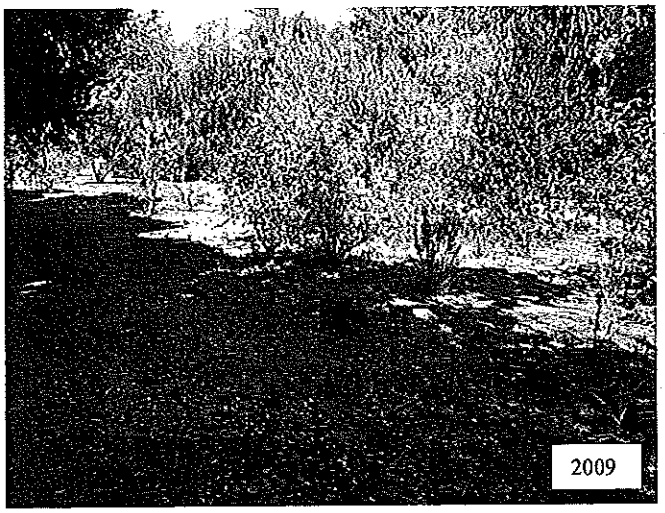



Figure 20B. View of Sample Plot 14, August 2009. Herbaceous cover and bare is 95%; shrub cover is 5%, tree cover is 0%. Weeds include tree-of-heaven. This area is frequented by transients; a homeless camp (with fed-feral cats) is nearby.


Figure 21A. View of Sample Plot 15, October 2005. Sample plot contains 8 plantings, consisting of 6 mugwort and 2 buckeyes. Herbaceous/bare cover is 60%; shrub cover is 39%, tree cover is 1%.

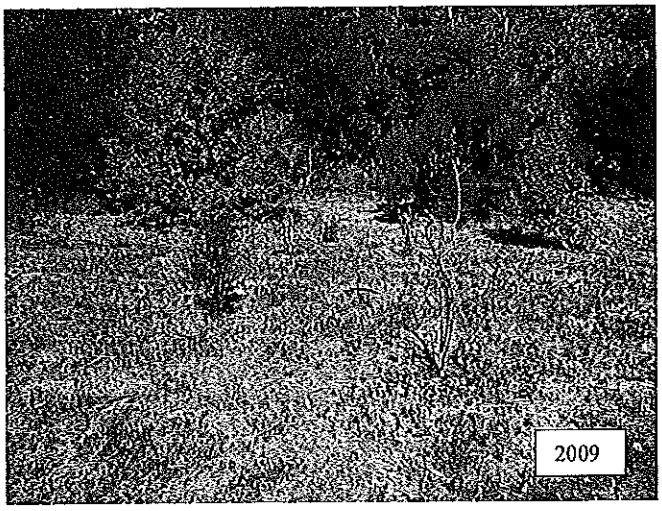



Figure 21B. View of Sample Plot 15, August 2009. Herbaceous/bare cover is 50%; shrub cover is 40%, tree cover is 10%.

### 1.7.4 Unauthorized Uses within the Habitat Mitigation Area

The riparian mitigation area, as well as the adjoining riparian woodland along Coyote Creek, continues to be significantly impacted by numerous homeless/transient encampments, trash, and human waste. As depicted in Figures 23 and 24, trash has been deposited within many areas within and/or immediately adjacent to the mitigation area. Some trash has been deposited in large piles (as depicted in Figure 23) while human waste (and accompanying sanitary products) is littered throughout the site. In addition to compromising the integrity of the mitigation area from the creation of foot trails and trampling of vegetation, these human activities degrade the value of the riparian mitigation area and the adjacent riparian woodland for native riparian-dependent wildlife. The abundance of exposed human waste is expected to be a health hazard, which may become a water quality problem within nearby Coyote Creek during the rainy season.

Both domesticated and feral dogs and cats were observed amid the encampments; the presence of these animals reduces the value of the mitigation area for native wildlife. Other activities observed during the Year 5 monitoring include: firewood collection and use of wood files for cooking, construction of multi-tent campsites, wood fencing around tent camp sites (Figure 24) and use of propane stoves. Periodic vandalism of the mitigation areas irrigation system also occurred in 2009.

Figure 23. Trash pile deposited within mitigation area (near sample plot 5), August 2009

Figure 24. Homeless encampment along edge of mitigation area and along edge of Coyote Creek. The camp supports tents and a wooden fence. A dog was observed in August 2009.

# Appendix A

## Tree-of-Heaven Removal Plan

# LEGEND

- Indicates a mature tree.

Shaded areas indicated a group of saplings.

# DEFINITIONS

**Sapling:**
A tree of less than 2 inches in diameter.

**Mature Tree:**
A tree of greater than 2 inches in diameter.

# NOTES

Mature trees are labeled with a number. Height, # of trunks, and DBH for mature trees can be found on SHEET R5

Sapling groups are labeled with a letter. The number of Saplings in a group can be found on SHEET R5


**Central Coast Wilds**
114 Liberty Street
Santa Cruz, CA 95060
Office: (831) 459.0656
Fax: (831) 457.1606
www.CentralCoastWilds.com


# Story Road Mitigation Site
# Tree of Heaven
# Removal Plan
# SITE #2, PART 1

| | | |
|---|---|---|
| | Designed: JTF | Project Number: |
| | Drawn: ABM | Scale: As Shown |
| | Checked: JTF | Drawing Number: |
| | Reviewed: JTF | Sheet R2 |
| | Date: 2/2018 | |

# LEGEND

● Indicates a mature tree.

Shaded areas indicated a group of saplings.

# DEFINITIONS

**Sapling:**
A tree of less than 2 inches in diameter.

**Mature Tree:**
A tree of greater than 2 inches in diameter.

# NOTES

Mature trees are labeled with a number. Height, # of trunks, and DBH for mature trees can be found on SHEET R5

Sapling groups are labeled with a letter. The number of Saplings in a group can be found on SHEET R5


**Central Coast Wilds**
114 Liberty Street
Santa Cruz, CA 95060
Office: (831) 459.0656
Fax: (831) 457.1608
www.CentralCoastWilds.com


# Story Road Mitigation Site
# Tree of Heaven
# Removal Plan
# SITE #2, PART 2

| | | |
|---|---|---|
| | Designed: JTF | Project Number: |
| | Drawn: ABM | Scale: As Shown |
| | Checked: JTF | Drawing Number: |
| | Reviewed: JTF | Sheet R3 |
| | Date: 2/1/2008 | |